Name: _____ **Due Date:** _____

Honors Algebra II: Summer Packet

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Evaluate the expression for the given value of the variable(s).

____ 1. $\frac{-4(2h - 2)}{2 + h}$; $h = -4$

a. –15 b. –12 c. –20 d. 20

____ 2. $x^2 + 8x - 2$; $x = 4$

a. 48 b. 22 c. 46 d. 34

Write an algebraic model for the situation and evaluate it for the given information.

____ 3. You are going shopping for some new sweaters, t-shirts, and pants. Sweaters (s) cost \$19, t-shirts (t) cost \$19, and pants (p) cost \$17. What algebraic expression models the total cost of clothes that you buy?

Suppose you bought 26 sweaters, 10 t-shirts, and 17 pairs of pants. How much did you spend?

a. $26s + 10t + 17p$; \$973
b. $19s + 19t + 17p$; \$973
c. $19s + 19t + 17p$; \$955
d. $26s + 10t + 17p$; \$955

Combine like terms. What is a simpler form of each expression?

____ 4. $3(-2y - 2) + 2y$

a. $-4y - 6$ b. $-10y$ c. $4y - 6$ d. $4y - 2$

Solve the equation.

____ 5. $y + 17 = -11 + 5y$

a. 6 b. $\dot{1}\,\dot{7}$ c. $\dot{-1}\frac{1}{2}$ d. 7

____ 6. $4y + 9 = -6(y - 5)$

a. $\dot{2}\frac{1}{10}$ b. $\dot{-1}\frac{2}{5}$ c. $\dot{-}\frac{5}{7}$ d. $\dot{10}\,\dot{21}$

Use an algebraic equation to solve the problem.

____ 7. Two cars leave Denver at the same time and travel in opposite directions. One car travels 10 mi/h faster than the other car. The cars are 600 mi apart in 6 h. How fast is each car traveling?

a. 45 mi/h and 55 mi/h
b. 55 mi/h and 65 mi/h
c. 55 mi/h and 35 mi/h
d. 35 mi/h and 45 mi/h

Solve the equation or formula for the indicated variable.

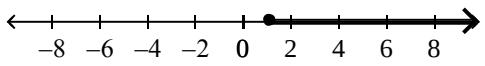
____ 8. $S = 6r^2t$, for t

a. $t = \frac{S}{6} - r$ b. $t = \frac{36r}{S}$ c. $t = r^2 - 6S$ d. $t = \frac{S}{6r^2}$

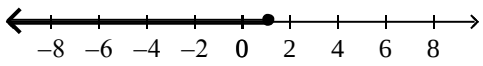
Solve the inequality. Graph the solution set.

____ 9. $24 + 6b \geq 2(3b + 5)$

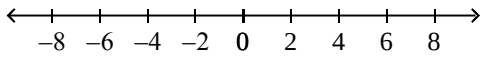
a. $b \geq 1\frac{1}{6}$



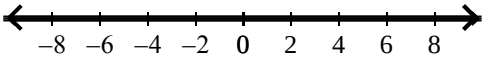
c. $b \leq 1\frac{1}{6}$



b. no solutions



d. all real numbers



Solve the absolute value equation.

____ 10. $|3x + 2| = -1$

a. $x = \frac{1}{3}$ or $x = -1$

c. $x = \frac{1}{3}$ or $x = -\frac{1}{3}$

b. $x = \frac{1}{3}$ or $x = -3$

d. $x = -1$ or $x = -\frac{1}{3}$

Solve the equation. Check for extraneous solutions.

____ 11. $6|4 - 2x| = 2x + 6$

a. $x = \frac{9}{7}$

c. $x = 3$ or $x = \frac{9}{5}$

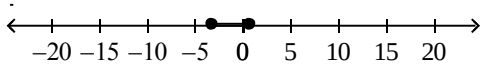
b. $x = 3$ or $x = \frac{9}{7}$

d. $x = 3$

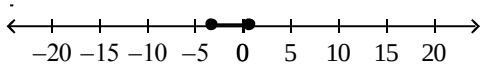
Solve the inequality. Graph the solution.

____ 12. $|6x + 6| \leq 12$

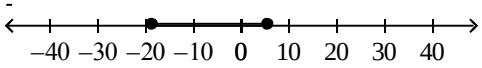
a. $-3 \geq x \geq 1$



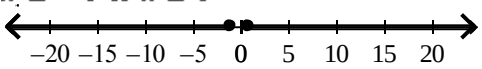
b. $-3 \leq x \leq 1$



c. $-18 \leq x \leq 6$

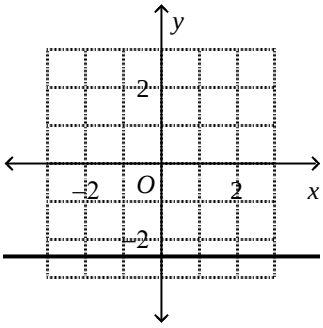


d. $x \leq -1$ or $x \geq 1$

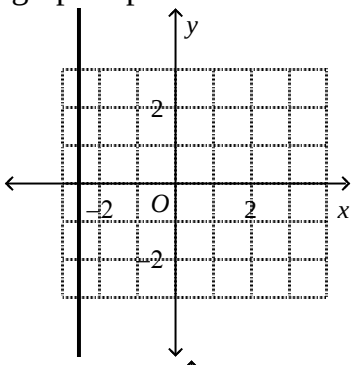


____ 13. Use the vertical-line test to determine which graph represents a function.

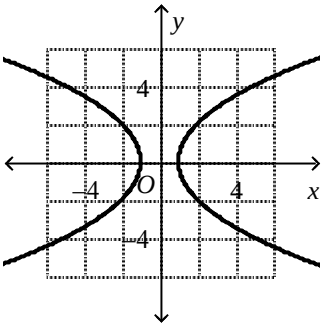
a.



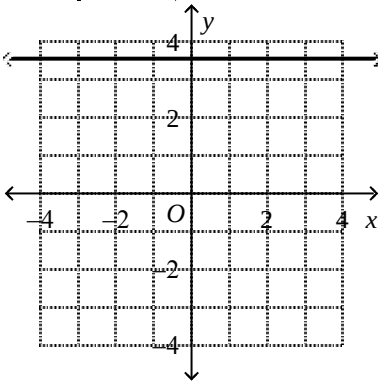
c.



b.



d.



For each function, what is the output of the given input?

____ 14. For $f(x) = -2x - 7$, find $f(-4)$.

a. 26 b. 15 c. 1 d. –15

____ 15. For $f(x) = 2x + 3$, find $f(-3)$.

a. –9 b. 9 c. –7 d. –3

Determine whether *y* varies directly with *x*. If so, find the constant of variation *k* and write the equation.

____ 16.

x	*y*
2	7
3	9
4	11
5	13

a. yes; $k = 2$; $y = 2x$
b. yes; $k = 3$; $y = 3x$
c. yes; $k = 3.5$; $y = 3.5x$
d. no

Find the value of *y* for a given value of *x*, if *y* varies directly with *x*.

____ 17. If $y = 62$ when $x = 310$, what is y when $x = 225$?

a. 1125 b. –1125 c. –45 d. 45

____ 18. If $y = 7.5$ when $x = 4.5$, what is y when $x = 4.98$?

a. 2.99 b. –8.3 c. –2.99 d. 8.3

What is the slope of the line that passes through the given points?

____ 19. (3, 2) and (3, 3)

a. undefined

b. $\frac{5}{6}$

c. $\frac{6}{5}$

d. 0

What is an equation of the line in slope intercept form?

____ 20. $m = \frac{4}{5}$ and the y-intercept is (0, –5)

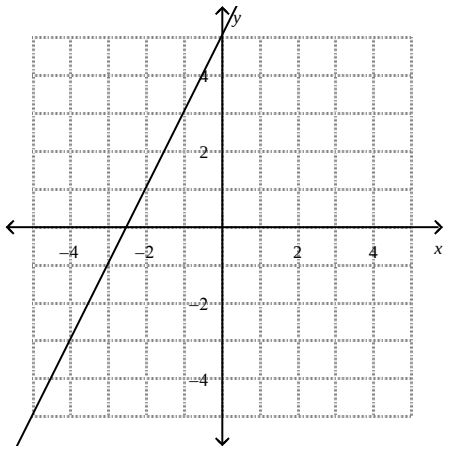
a. $y = -5x + \frac{4}{5}$

b. $y = 5x - \frac{4}{5}$

c. $y = \frac{4}{5}x + 5$

d. $y = \frac{4}{5}x - 5$

____ 21.



a. $y = -5x + 2$

b. $y = 2x - 5$

c. $y = 2x + 5$

d. $y = 5x + 2$

Write the equation in slope-intercept form. What are the slope and y-intercept?

____ 22. $-5x - 3y = 6$

a. $y = \frac{5}{3}x + 2$;
slope: 2; y-intercept: $\frac{5}{3}$

b. $y = -\frac{5}{3}x - 2$;
slope: $-\frac{5}{3}$; y-intercept: -2

c. $y = \frac{5}{3}x - 2$;
slope: $\frac{5}{3}$; y-intercept: -2

d. $y = -\frac{5}{3}x + 2$
slope: $\frac{5}{3}$; y-intercept: 2

____ 23. $\frac{3}{5}x + \frac{4}{5}y = 6$

a. $y = -\frac{3}{4}x + \frac{15}{2}$
slope: $-\frac{3}{4}$; y-intercept: $\frac{15}{2}$

b. $y = \frac{3}{4}x - \frac{15}{2}$;
slope: $\frac{3}{4}$; y-intercept: $-\frac{15}{2}$

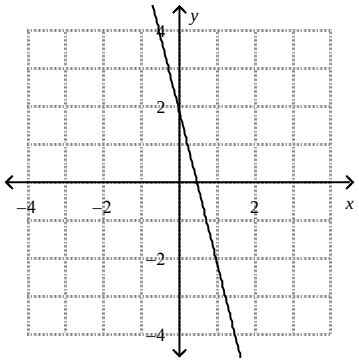
c. $y = \frac{3}{4}x + \frac{15}{2}$;
slope: $\frac{15}{2}$; y-intercept: $\frac{3}{4}$

d. $y = -\frac{3}{4}x - \frac{15}{2}$
slope: $-\frac{3}{4}$; y-intercept: $-\frac{15}{2}$

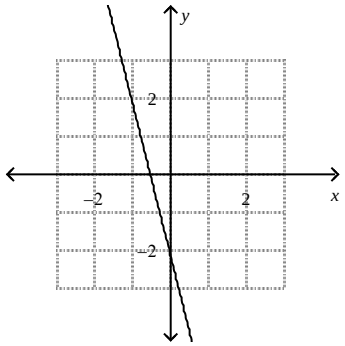
What is the graph of the equation?

____ 24. $4x - y = 2$

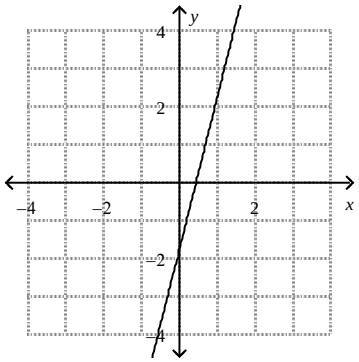
a.



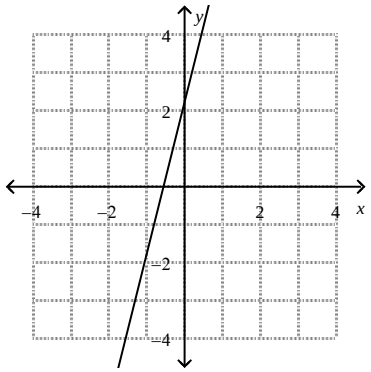
c.



b.



d.



Write an equation of the line, in point-slope form, that passes through the two given points.

____ 25. points: $(-4, 2)$, $(2, -16)$

a. $y - 4 = -3(x - 2)$

b. $y - 2 = -3(x + 4)$

c. $y - 4 = -\frac{1}{3}(x + 2)$

d. $y - 2 = -\frac{1}{3}(x + 4)$

What is an equation of the line, in point-slope form, that passes through the given point and has the given slope?

____ 26. point: $(7,-7)$; slope: 3

a. $y-7=3(x-7)$
b. $y+7=3(x+7)$
c. $y+7=3(x-7)$
d. $y-7=3(x+7)$

____ 27. point: $(9,2)$; slope: $\frac{4}{9}$

a. $y-9=\frac{4}{9}(x+2)$
b. $y+2=\frac{4}{9}(x-9)$
c. $y-9=\frac{4}{9}(x-2)$
d. $y-2=\frac{4}{9}(x-9)$

What is the equation of the line in slope-intercept form?

____ 28. the line parallel to $y=-8x-3$ through (7, 6)

a. $y=8x+62$
b. $y=-8x+62$
c. $y=-8x+50$
d. $y=\frac{1}{8}x+62$

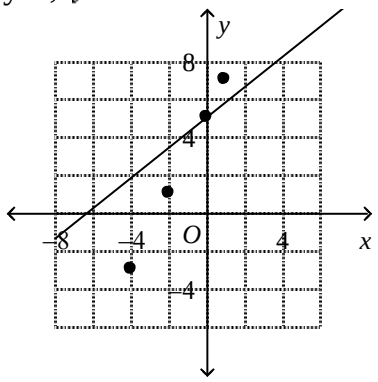
____ 29. the line perpendicular to $y=\frac{1}{2}x-4$ through (7, –3)

a. $y=2x+11$
b. $y=-2x+11$
c. $y=-\frac{1}{2}x+11$
d. $y=\frac{1}{2}x+11$

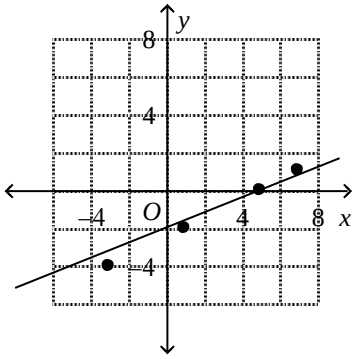
Graph the set of data. Decide whether a linear model is reasonable. If so, draw a trend line and write its equation.

____ 30. {(1, 3), (–2, 1), (3, –2), (–4, –3), (0, 5)}

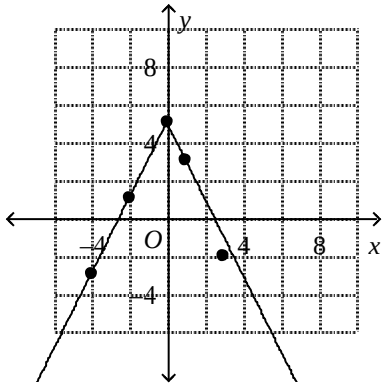
a. yes; $y = 0.9x + 8.6$



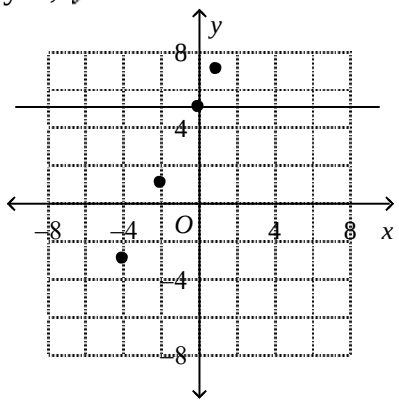
b. yes; $y = \frac{2}{5}x - 2$



c. a linear model is not reasonable



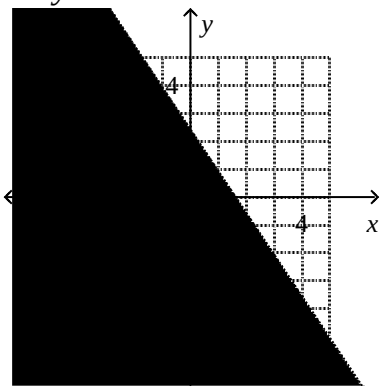
d. yes; $y = 5$



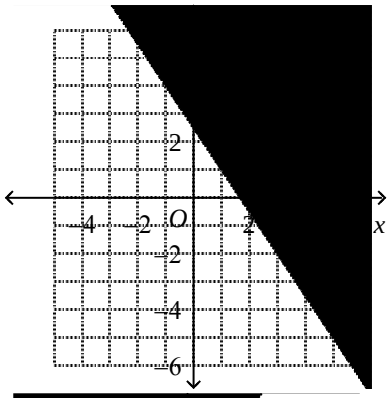
What is the graph of each inequality?

____ 31. $-3x - 2y > -5$

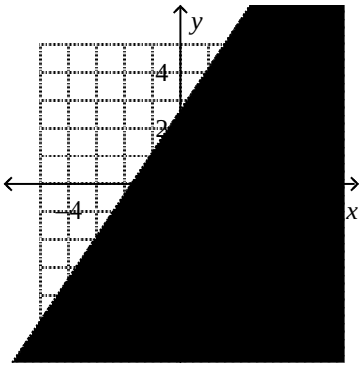
a.



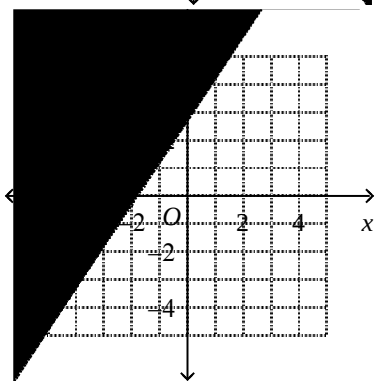
c.



b.



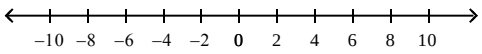
d.



Short Answer

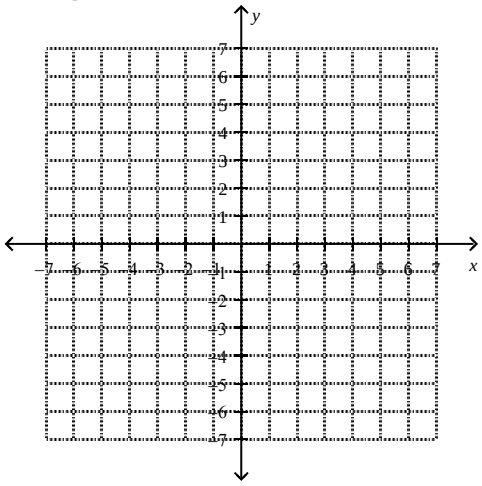
Solve the inequality. Graph the solution set.

32. $-3 + 2k \geq -3$

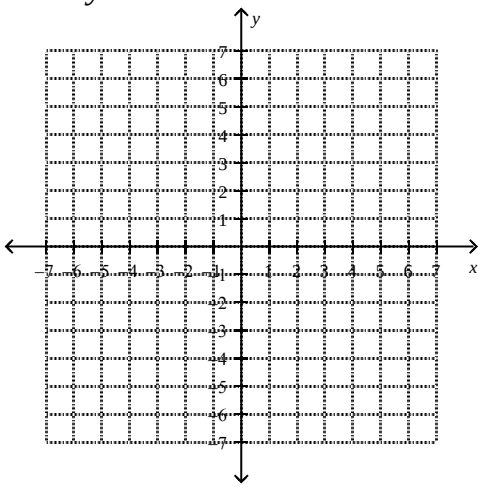


What is the graph of each inequality?

33. $2x \leq 3y - 7$



34. $-x + 2y \geq -5$

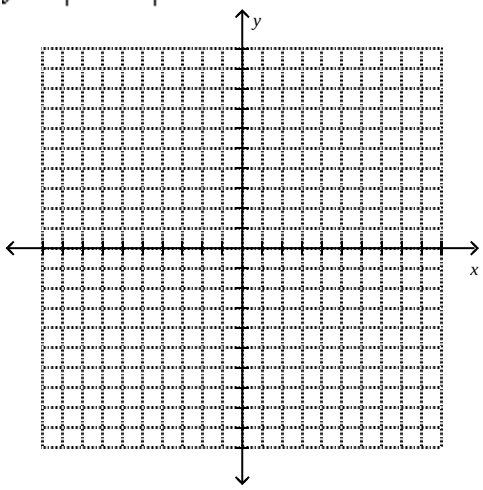


Compare each function with the parent function. Without graphing, what are the vertex, axis of symmetry, and transformations of the parent function?

35. $y = |6x - 7| - 4$

What is the graph of the absolute value equation?

36. $y = |3x - 3|$

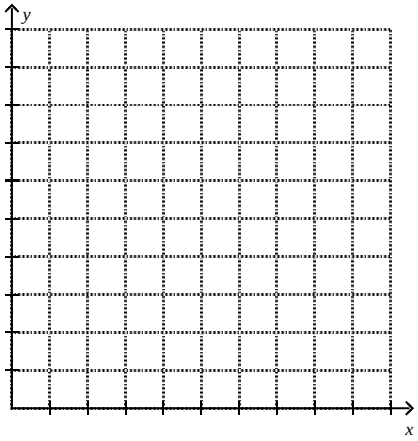


What is the equation of the line in slope-intercept form?

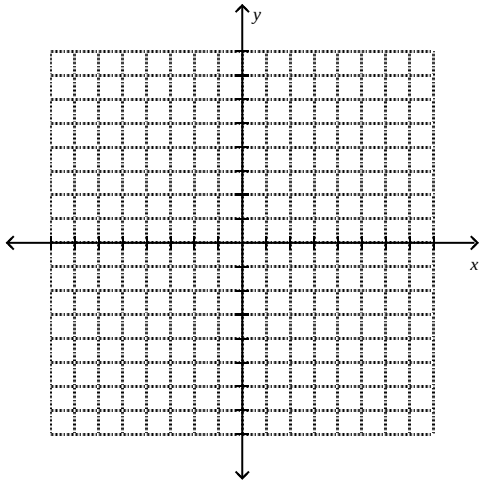
37. the line perpendicular to $y = \frac{5}{8}x - 3$ through (5, 2)

What are the intercepts of the equation? Graph the equation.

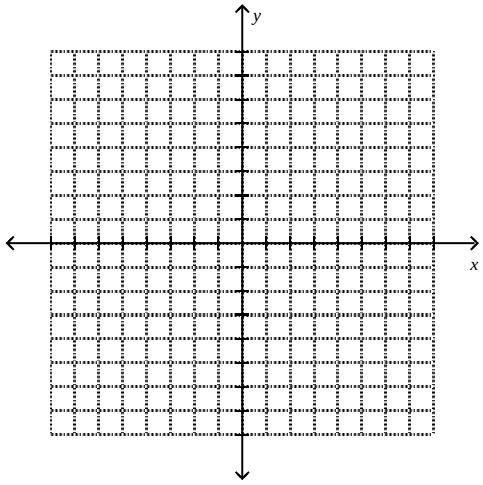
38. The office manager of a small office ordered 145 packs of printer paper. Based on average daily use, she knows that the paper will last about 65 days. What graph represents this situation? How many packs of printer paper should the manager expect to have after 5 days?



39. $-2x + 4y = -8$

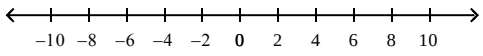


40. $-2x + 2y = -8$



Solve the compound inequality. Graph the solution.

41. $2x - 2 < 0$ or $7x + 5 > 26$



Solve the absolute value equation.

42. $3|4x + 3| - 8 = 7$

Is the relation a function?

43. {(9, 8), (7, 5), (4, 7), (3, 10), (7, 10)}

44. Tickets to a concert are available online for $20 plus a one-time handling fee of $2.25. The total cost is a function of the number of tickets bought. What function rule models the cost of the concert tickets? Evaluate the function for 3 tickets.

What is the slope of the line that passes through the given points?

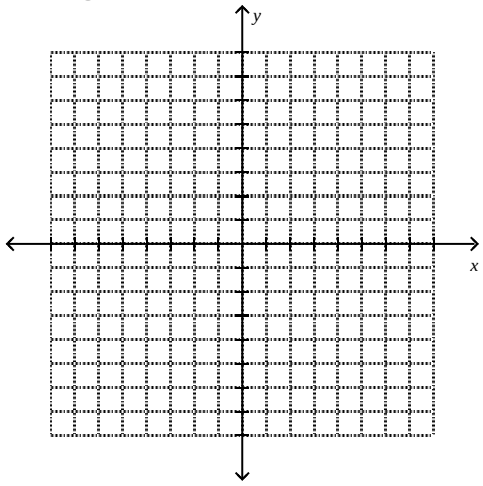
45. (4, 8) and (5, 11)

Write the equation in slope-intercept form. What are the slope and y-intercept?

46. $-7x + 9y = -11$

What is the graph of the equation?

47. $-3x - 4y = 4$



Write an equation of the line, in point-slope form, that passes through the two given points.

48. points: $(-16, 2)$, $(18, -15)$